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**Title: A Process for the Automatic Creation and  
Monitoring of a Progress Plan for a Training  
Course by a Computer**

*Background OF The Invention*  
~~Description~~

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The present invention relates to a process for the  
automatic creation and monitoring of a progress plan for a  
training course comprising at least one training unit by a  
computer.

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The present invention further relates to a computer for the  
automatic creation and monitoring of a progress plan for a  
training course comprising at least one training unit.

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The computer in which such a process is implemented is  
generally a microcomputer, in particular a personal  
computer (PC). A process of the above mentioned type is  
used in the framework of computer-assisted learning or  
computer-based training (CBT). CBT is the generic term for  
interactively imparting knowledge by means of a computer.  
From the prior art a CBT process is known which operates  
off-line and which, from a local storage medium, for  
example a CD-ROM, makes the training units of the training  
course available to the trainee on a display unit of the  
computer for study purposes. However, CBT processes are  
also known which utilize the facilities of modern computer  
networks, for example an in-house intranet or the world-  
wide internet, to present the training units of the  
training course. In the CBT processes which operate using  
computer networks, a specific computer in the computer  
network, the so-called server, is accessed by the trainee  
via his computer by means of the computer network. The  
training units of the training courses, the training  
environment, and functions for the management of the  
training courses are stored in the server.

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In the known CBT processes, the trainee himself determines

whether, and at which times, he would like to study a training course he has commenced. The study activity of the trainee, in particular his work input into the training course, is not monitored. The trainee must himself plan, 5 coordinate and monitor his progress through the individual training units.

The known CBT processes are shifting the training process increasingly into the area of responsibility of the 10 trainee. A very high degree of self-initiative, self-discipline and learning ability is demanded of the trainee.

One of the greatest problems here resides in the motivation of the trainee to study the training course over a 15 relatively long time interval with uniform input. In the starting phase the novel training method of CBT is of interest to the trainee. However, most training courses extend over a long time interval which can involve a plurality of training units and a plurality of sittings. 20 At each sitting the trainee spends a specified period of time studying the training course. The study time for the training course can extend over days (for example to train sales personnel to sell new products), weeks, or even months (for example to learn a new foreign language).

25 Over relatively long time intervals the trainee's motivation often falls considerably as, in contrast to a taught training course, so-called classroom training, in CBT a course leader who can monitor, urge on, or motivate 30 the trainee is not normally present. In CBT the trainee is himself responsible for the planning and coordination of the training course. However, it is difficult to plan accurately in advance for such long time intervals. For this reason, often no progress plan is created for the 35 training course. When the trainee has the time and inclination, he studies one or more training units of the

training course. Because of this problem, once commenced a CBT process often is continued only with a struggle or is discontinued entirely. Consequently classroom training is often considerably more efficient and results in better training success for the trainee than CBT.

a *Summary of the Invention*

An object of the present invention is therefore to design and further develop a process of the type referred to in the introduction so as to increase the efficiency of the training course.

To achieve this object, commencing from the process of the type referred to in the introduction, the invention proposes a process which is characterised by the following steps:

- definition by the computer of first time units which represent the time periods which a trainee would like to spend on the training course,
- definition by the computer of second time units which represent the time periods required to execute the training units of the training course,
- creation by the computer of a progress plan for the execution of the training course in dependence upon the first time units and the second time units, where for each training unit the progress plan specifies a time by which the trainee is expected to have completed the corresponding training unit and
- monitoring by the computer as to whether the corresponding training unit has been completed by the time specified in the progress plan.

In accordance with the invention, it has been recognised that the efficiency of CBT processes can be particularly increased by monitoring the study activity of the trainee, in particular the time input by the trainee into studying the training units of the training course. In contrast to

classroom training, no course leader is required to monitor the trainee. Rather, the monitoring is performed automatically by a computer. For the monitoring of the trainee, firstly a progress plan for the execution of the training course is created on the basis of information provided by the trainee or on the basis of information stored in the computer. During the training course the computer then monitors that this progress plan is adhered to.

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In the process according to the invention, in particular the following steps are executed. At the start of a training course the computer asks the trainee which training course he would like to study. The trainee also indicates the length of time within which he would like to complete the training course. Finally the trainee specifies first time units which represent the time periods he would like to spend on the training course within this length of time. The first time units comprise for example the number of hours each day for which the trainee wishes to study or information as to whether he wishes to study at weekends or on holidays.

The first time units can be defined by direct inputting of the required time information by the trainee. However, it is also conceivable for the computer to provide different personal categories for selection by the trainee. Each of these personal categories is associated with specific learning behaviour patterns, in particular first time units. To define the first time units, the trainee simply selects one of these personal categories.

The computer also defines the second time units which represent the time periods required to execute the training units of the training course. The second time units can either be predefined in the computer or are assigned to the

personal categories stored in the computer and are defined on the basis of the personal category selected by the trainee. Finally it is also conceivable for the trainee to individually input the time which he believes he will  
5 require to study a training course.

In dependence upon the first time units and the second time units, the computer then automatically creates a progress plan for the execution of the training course. The  
10 progress plan precisely specifies which training unit is to be made available to the trainee at which time. For each training unit, the progress plan also specifies a time by which the trainee is expected to have completed the corresponding training unit.

15 During the progression of the training course the computer monitors whether the corresponding training unit has been completed by the time specified in the progress plan. If the progress plan is not adhered to, the computer can  
20 implement suitable measures. Similarly as in the case of a course leader in classroom training, these measures can consist of drawing the trainee's attention to the time delay, presenting the trainee with additional units to be studied as a penalty, extending the duration of the  
25 training course or, as a last resort, excluding the trainee from the training course.

By means of the process according to the invention, for the first time it is possible to monitor the time input by the  
30 trainee without a course leader. In this way the motivation of the trainee, and the training success attainable by means of CBT, can be decisively increased. The process according to the invention has a particularly high degree of efficiency as it combines the advantages of  
35 classroom training (monitoring of the work input by the trainee) with the advantages of CBT (captivation of the

trainee by appealing multimedia presentation of the training units).

In accordance with an advantageous further development of the invention, it is proposed that the trainee be notified if the corresponding training unit has not been completed by the time specified in the progress plan. Often the trainee only becomes aware of his deficiency when notified.

Moreover, the trainee is generally encouraged by the notification to spend more time on the training course. The trainee has the sense that he is being monitored and develops an ambition to adhere to the time specifications for the training course. As a result he will again work harder on the training course.

In accordance with an advantageous embodiment, it is proposed that the result of the monitoring is stored. The stored monitoring results can then be accessed at any time.

They can be used to create a type of certificate at the end of the training course or to allow the trainee, during the training course, to check on his advancement or level in the training course. When several trainees are working independently on a common training course, in CBT normally there is hardly any sense of competition as one trainee generally receives no information from the other trainees.

To foster a sense of competition between several trainees, and thus greater input, the monitoring results of the trainees can also be publicised so as to be accessible to each trainee on a training course. The publication can take place for example on a blackboard or on a specified web page of a computer network to which all subscribers to a training course have access.

To enable the progress plan to be adapted to new factors during the training course, in accordance with an advantageous further development it is proposed that the

progress plan be recreated if the corresponding training unit has not been completed by the time specified in the progress plan. In this way the trainee is not subjected to excessive time pressure if he cannot adhere to the times specified for a training unit by the progress plan.

Instead, the progress plan is adapted to the new factors, for example in that the time by which the trainee is expected to have completed the corresponding training unit is postponed.

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In the recreation of the progress plan, new values for the first and second time units can be taken into account.

This can be useful if it is anticipated that in future the trainee will be able to spend less time on the training course. It is also conceivable for the progress plan to be recreated if new factors arise which affect the time frame for the training course set in the progress plan, for example if the trainee wishes to complete the training course within a shorter time interval than originally provided.

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In accordance with a particularly preferred further development, it is proposed that the training course be terminated if, more than once, the corresponding training unit has not been completed by the time specified in the progress plan. The number of times the time specified in the progress plan can be overshoot before the training course is terminated can be freely determined. In the case of very strict handling of the process, it is conceivable for the training course to be terminated after just one overshooting of the time specified in the progress plan. A training course studied on a free-will basis can permit frequent overshooting of the specified time before the training course is terminated. Upon the resumption of the training course following the termination, the training course must again be worked through from the start. The

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trainee is preferably notified of the termination of the training course.

To inform the trainee what the training course progress plan is like, it is proposed that the progress plan is sent to the trainee following its creation. The trainee then has the option of preparing for specific training units.

In accordance with another, particularly preferred further development of the invention, it is proposed that the training units are made available to the trainee via a computer network.

Advantageously, the training units are made available to the trainee via an in-house computer network (intranet). Alternatively or additionally, it is proposed that the training units are made available to the trainee via a global computer network, in particular the internet.

Via the computer network, the trainee can advantageously be notified via electronic mail (e-mail) that the corresponding training unit has not been completed by the time specified in the progress plan, or that the training course has been terminated. In accordance with a preferred embodiment, the progress plan can also be sent to the trainee via electronic mail (e-mail). Alternatively, it is proposed that the progress plan be made available on a web page to which the trainee has access. The study progress of the trainee, or other information relating to the training course, can also be made available on the web page.

The implementation of the process according to the invention in the form of a control element for a computer is of particular significance. Here the control element stores a program which can run on the computer and is

suitable to execute the process according to the invention.

Thus in this case the invention is implemented by a program stored on the control element so that this control element, provided with the program, constitutes the

5 invention in the same way as the process which the program is suitable to execute. An electric storage medium, for example a compact disc (CD), floppy disc or the like, can be used in particular as control element.

10 A further object of the present invention consists in designing and further developing a computer of the type referred to in the introduction so as to increase the efficiency of the training course.

15 To achieve this object, commencing from the computer of the type referred to in the introduction, the invention proposes that the computer should comprise:

- means for defining first time units which represent the time periods which a trainee would like to spend on the training course,
- 20 - means for defining second time units which represent the time periods required to execute the training units of the training course,
- means for creating a progress plan by the computer for the execution of the training course in dependence upon the first time units and second time units where, for each training unit, the progress plan specifies a time by which the trainee is expected to have completed the corresponding training unit and
- 25 - means for monitoring by the computer whether the corresponding training unit has been completed by the time specified in the progress plan.
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In accordance with a preferred further development, it is  
35 proposed that the computer comprises means for notifying the trainee if the corresponding training unit has not been

completed by the time specified in the progress plan.

Advantageously, the computer comprises means for storing the monitoring result.

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In accordance with a preferred embodiment, the computer comprises means for sending the progress plan to the trainee following its creation.

- 10 In accordance with another further development of the present invention, the computer is connected to a computer network. The computer is preferably connected to an in-house computer network (intranet). Alternatively, it is proposed that the computer is connected to a global  
15 computer network, in particular the internet.

*Brief Description of the Drawing*

In the following a preferred embodiment of the present invention will be explained in detail making reference to the drawing in which:

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Figure 1 is a flow diagram of the process according to the invention.

*Detailed Description of the Invention*

- In Figure 1 the process according to the invention has been  
25 provided with the overall reference symbol 1. The process 1 serves for the automatic creation and monitoring by a computer of a progress plan for a training course comprising at least one training unit. At the start of the process 1, in a step 2 first time units are defined which  
30 represent the time periods a trainee 3 would like to spend on the training course. As shown in Figure 1, the first time units can be defined by the computer by interaction (broken line) with the trainee 3. However, the first time units can also be automatically defined by the computer.  
35 Thus the computer can define specified values for the first time units, for example in accordance with a personal

category to which the trainee belongs.

In a following step 4, second time units are automatically defined by the computer. The second time units represent  
5 the time periods necessary to execute the training units of the training course.

In a following step 5, a progress plan is automatically created by the computer. For each training unit, the  
10 progress plan specifies a time by which the trainee 3 is expected to have completed the corresponding training unit.

In a following step 6 of the process 1, the first training unit of the training course is made available. This  
15 training unit is studied or executed by the trainee 3 interactively (broken line). In a following enquiry 7 it is checked whether the first training unit has been completed by the time specified in the progress plan. If this is the case, in a following enquiry 8 it is checked  
20 whether all the training units of this training course have already been made available to the trainee 3. If this is not the case, at this point the process branches to step 6 and makes the next training unit available to the trainee.

25 If the training unit has not been completed by the specified time (enquiry 7), in a further enquiry 9 it is checked whether this has already occurred more than once. If this is the case, the training course is terminated at this point and a corresponding notification is sent to the  
30 trainee 3 (step 10). If this has not already occurred more than once, in the step 10 the trainee 3 is sent a notification informing him that he has not completed the corresponding training unit by the time specified in the progress plan. Additionally, the process 1 branches at  
35 this point to the step 5 in which a new progress plan is then created. In the new progress plan, those training

units which have not yet been studied are collectively put back in time, or else longer time intervals are set between the training units which have not yet been studied. In the following step 6, the trainee 3 is presented with the training unit which he has not yet studied. The creation of a new progress plan in step 5 has no influence upon the sequence of the training units of the training course. Only when one training unit has been completed is the next training unit made available to the trainee.

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When all the training units of the training course have been made available to the trainee 3 (enquiry 8), the training course comes to an end.

- 15 It is conceivable that, following the creation of a progress plan (step 5), the progress plan is sent to the trainee 3 (not shown). The training units are made available to the trainee 3 via a computer network (step 6). The computer network can have the form of an in-house intranet or the world-wide internet.
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The notification of the trainee 3 (step 10) that he has not completed the corresponding training unit by the time specified in the progress plan, or that the training course is being terminated can take place via electronic mail (e-mail).

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